Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended): A method for processing a document based on information in a user interface tag, comprising the steps of:

scanning the document to produce an image representative of the document;

locating an iconic representation comprised as part of the user interface tag in the image, comprising:

identifying connected components of the image;

searching, in each of the connected components, for a plurality of extreme points that extend furthest in a selected direction;

identifying corner candidates by applying a diagonal length criteria to at least one pair of the extreme points that are diametrically opposed;

analyzing relationships among a plurality of the corner candidates to form one or more border candidates for the iconic representation;

decoding data represented in ~~the user interface tag~~ at least one such border candidate;

associating the data with a service and a user identity; and

performing the specified service on the image representative of the document.

Claim 2 (canceled).

3. (original): The method of claim 1, wherein the step of decoding the data comprises the steps of:

determining a lattice of glyphs represented in the user interface tag;

identifying a seed glyph within the lattice;

finding all glyphs within the lattice;

identifying the rotation of the lattice; and

converting the glyphs to binary data.

4. (original): The method of claim 1, wherein the step of associating the data with a service and a user identity comprises the steps of:

extracting a user identity code from the data; and

accessing a database to determine user identification information associated with the identity code.

5. (original): The method of claim 4, further comprising the steps of:

extracting a service code from the data; and

accessing a database to determine service information associated with the service code.

6. (original): The method of claim 4, further comprising the step of accessing a database to determine service information associated with the identity code.

Claims 7-10 (canceled).

11. (currently amended): [[A]] The system of claim 15, wherein the user interface tag ~~bearing~~ bears a machine-readable printed data code, ~~wherein~~ the tag [[is]] being adapted to be associated with a hardcopy document for scanning by a document processing system, and ~~wherein~~ the data code ~~comprises~~ comprising an identity code representative of a user's identity and a service code specifying a service to be performed on said hardcopy document.

Claims 12-13 (canceled).

14. (currently amended): ~~An apparatus for the creation of user interface tags for use in a tag-based document service system~~ The system of claim 15, comprising:

an identity processor adapted to receive user information and create an identity code;

a user information database associating the user information with the identity code; and

an output device capable of printing [[a]] the user interface tag bearing a machine-readable printed data code representative of the identity code and a service to be performed on [[a]] the hardcopy document to which said user interface tag is affixed.

15. (currently amended): A document service system having a tag-based user interface, comprising:

a scanner adapted to receive a hardcopy document and produce a digitized image of the document;

an action processor adapted to identify an iconic representation comprised as part of a user interface tag image within the digitized image, comprising a connected component identifier to identify connected components of the image; a corner candidate identifier to search, in each of the connected components, for a plurality of extreme points that extend furthest in a selected direction and to identify corner candidates by applying a diagonal length criteria to at least one pair of the extreme points that are diametrically opposed; an analyzer to analyze relationships among a plurality of the corner candidates to form one or more border candidates for the iconic representation; and to decode information represented in ~~the user interface tag~~ at least one such border candidate, said information including information indicating a service to be performed on said hardcopy document; and

a device operated by the action processor responsive to the service information represented in the user interface tag.